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ABSTRACT

This paper starts from the premise that to be effective, e-education has to be intrinsically motivating. However, in contrast to much of the literature in the field, which focuses almost exclusively on the needs of students, the paper discusses three groups of stake holders whose concerns and motivation have to be considered: students, instructors, and institutions. Following a critical review of the literature on e-education, which highlights some of the major themes that have attracted research so far, the paper proceeds to introduce a model that integrates the needs of the above three stakeholders. The model is followed with a description of the Radical Model, an innovative approach to e-education that is an example of applying the proposed model in practice. The paper concludes with a discussion of the research implications from the model. (Contains 15 references.) (Author)

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WHO DO WE NEED TO MOTIVATE? TOWARD AN INTEGRATIVE MODEL OF E-EDUCATION

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ABSTRACT

This paper starts from the premise that to be effective, e-education has to be intrinsically motivating. However, in contrast to much of the literature in the field, which focuses almost exclusively on the needs of students, the paper discusses THREE groups of stake holders whose concerns and motivation have to be considered: students, instructors, and institutions. Following a critical review of the literature on e-education, which highlights some of the major themes that have attracted research so far, we proceed to introduce a model that integrates the needs of the above three stakeholders. The model is followed with a description of the Radical Model, an innovative approach to e-education that is an example of applying the proposed model in practice. We conclude with a discussion of the research implications from the model.

INTRODUCTION

In a recent editorial (Emurian, 2001, pp 3-5), the author hails e-education as a revolution that would make the dream of "management of individual differences among learners" come true. In his editorial, the author lists a number of rhetorical questions that relate to the issues that he believes will be addressed by the advent of e-education, including:

1. Where is it written that the pace of life must be controlled by an academic institution?
2. Where is it written that a course grade must be frozen in time for ever?
3. Where is it written that a student must be limited to a single evaluation occasion, without the opportunity for additional learning to achieve an intellectual criterion of excellence?
4. Where is it written that the scale of an intellectual unit must be a traditional semester long course?

The above questions reflect a series of issues that are of importance to students and that e-education could address. Once these issues are addressed through the design of courses that can be started and finished at any time and assessment procedures that allow students to repeat tasks indefinitely, the end result could, indeed, be a highly individualised learning experience for students. But is this what e-education is about, particularly in the context of universities?

The underlying premise of this paper is that this is not the case. In order for e-education to succeed it has to cater to THREE stake holders and not just one. Creating an environment that is motivating to students is one of the major objectives of any educational technology. However, for such a technology to be sustained over time, it has to be intrinsically motivating to those who

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manage it (instructors) and those who resource it (institutions). Following a critical review of the literature on e-education, which highlights some of the themes that have been emphasised by previous research to date, we proceed to introduce a model that integrates the needs of students, instructors and institutions. The model is followed with a case study that details the Radical Model, an innovative approach to e-education that is an example of applying the model in practice. We conclude with a discussion of the research implications from the model.

LITERATURE REVIEW

The literature on e-education to date seems to emphasise a number of themes. Following is a short review of these themes.

First, there seems to be a debate over the TYPES of approaches to on-line teaching. One of the central models in this area, the Typology of Dispersion (Johansen, 1992), differentiates between on-line teaching that occurs at the same place and at the same time (Synchronous/Proximate), teaching that occurs at the same time but in different places (Anytime/Virtual), teaching that occurs at the same place but at different times (Synchronous/Dispersed), and teaching that occurs at different times and different places (Asynchronous/Dispersed). Other writings discuss specific technologies that can support the various teaching situations in the above model, such as presentation technologies (Leidner and Jarvenpaa, 1995) to support the same time/same place teaching, video conferencing to support same time/different place teaching (Alavi, Wheeler, and Valacich, 1995), Web page presentation, e-mail and other Internet based technologies to support different time and different place teaching (Chizmar and Williams, 1996; Kuecheler, 1999).

Second, there is a growing literature on underlying PHILOSOPHY of on-line teaching. One of the central models in this area, the Dimensions of Learning Theories approach, has been proposed by Leidner and Jarvenpaa (1995). The model differentiates between two broad philosophies of teaching. Objectivism, which holds that learning occurs in response to an external stimulus, and constructivism, which holds that knowledge is created in the mind of the learner. As a result, while the objectivism approach would lead to learning situations where knowledge is "delivered" to passive learners by an active instructor, the constructivist philosophy would result in learning situations where active learners create knowledge through interaction with each other.

There is an emerging body of literature that looks at the implications of this model to on-line teaching (Passerini and Granger, 2000). The findings from this research seem to suggest that the objectivist approach does not result in significant benefits, namely, there are no significant differences between face to face and videoconference lectures (Alavi, Yoo and Vogel, 1997) and there are no significant differences between web site and audio supported learning and face to face learning (LaRose, Gregg and Eastin, 1998). However, the constructivist approach does seem to have relative benefits in that GSS supported classes seem to do better than face to face ones (Alavi, 1994), particularly in areas relating to critical thinking (Alavi, Wheeler and Valacich, 1995). Interestingly, while the quality of learning for the IT supported students seems to be about the same as for the face-to-face ones, they appear to be less satisfied with the learning experience (Ocker and Yaverbaum, 1999).

Finally, a third prominent theme in the literature on e-education is the discussion of its STRCTRAL antecedents. Here we find, on one hand the claim that e-education is a necessary evil imposed on universities because of declining resources and the necessity to reduce costs and expand markets (Alavi, Yoo and Vogel, 1997) and on the other the fear that once universities embrace this innovation, it could result with a "second rate" education for students and a transformation of university instructors from creators of new knowledge (researchers) into assembly line labourers, delivering educational services to masses of virtual students (Klor de Alva, 2000).

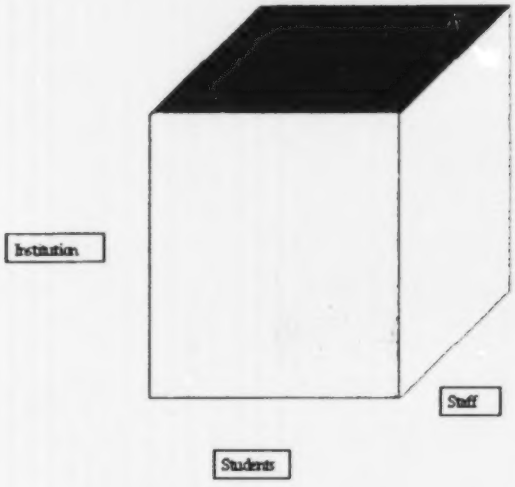
TOWARD AN INTEGRATIVE MODEL OF E-EDUCATION

The above review suggests a need for integration of what appears to be several distinct bodies of research. While the first body of research, on the technologies that support e-education, is important in terms of understanding the tools that can be applied in this area, and while the second body of research, on the underlying philosophies of e-education, can help assess the effectiveness and efficiency of e-education in terms of

how it meets a given set of goals, both bodies of research are student centred in that they focus primarily on the needs of students.

What is currently lacking in the literature is more emphasis on the needs of the two other stake-holders in the e-education game, namely, instructors and institutions. Figure 1 presents a pictorial depiction of the three dimensional integrative model that we are proposing as a basis for a future research agenda in this area. The three dimensions of the model reflect the motivational needs of students, instructors and institutions that are yet to be described.

FIGURE 1
INTEGRATIVE MODEL FOR E-EDUCATION



The following are some issues that, based on current research, are likely to emerge as motivating factors for the three stake-holders and that could be the content of future versions of the proposed integrative model.

Students

Some of the issues that are likely to motivate students to engage in e-learning are the perception that this experience has resulted in the acquisition of relevant knowledge and skills, satisfaction with the interaction with the instructor and other students during the learning process, receipt of ample amounts of feedback on progress, and the receipt of an a fair grade at the end of the course.

Instructors

Some of the issues that are likely to motivate instructors to engage in e-learning are the perception that this experience has resulted in an enhancement of the instructors knowledge and skills, satisfaction with the interaction between the instructor and the students during the learning process, the perception of the effort invested in the teaching of course as reasonable, the perception that the instructor receives appropriate recognition and rewards for his/her investment in e-education.

Institutions

Some of the issues that are likely to motivate instructors to engage in e-learning are the perception that the institution is likely to gain from investing in this innovation, satisfaction with the process of changing the organization to one that engages in e-learning, once it has been undertaken, the perception that e-learning is cost-effective, the perception that the organization is likely to benefit from the investment in e-education in future.

APPLYING THE INTEGRATIVE MODEL IN PRACTICE

In the following sections we discuss an approach to e-education that is currently applied for a range of courses (Cook and Veach, 1997, Romm and Taylor, 2000, Roberts, Jones and Romm, 2000) at Central Queensland University, Australia, including small post-graduate courses (with up to 20 students) and large under-graduate courses (with up to 100 students). The students are a combination of on-campus and distant learners, with both groups treated as one homogenous class.

To date, this approach has been used to teach courses in Management of Information Systems and Electronic Commerce. Student responses to this approach have been very positive. One indication of this is that the two elective courses that which pioneered this approach on a large have gone up from zero to over 300 students in just about two years.

The teaching materials for this approach (irrespective of what area is being taught) include:

- A video which contains detailed explanations on how the course is run;

- A ten-page booklet "Course Outline" which describes all necessary information about the course (it is available on line as part of the course's Web site and is provided to the students on a CD ROM and on hard copy);

- A textbook; and

- A class e-mail list.

The first thing that students do once they read the course outline and watch the video is subscribe to the class e-mail list. They then introduce themselves to the class on-line so they can be divided into weekly presentation groups. The allocation to groups is completed by the second week of the semester. By this time, students are expected to establish contact with their virtual group members and start working on their assessment tasks. On week 3 of the semester, the first group makes its presentation to the class on-line. The presentation consists of an article (which the students have to enclose, attach, or simply establish a hyper-link to) and a critique that links the article with the reading in the book for the week.

The presentation is made on Monday of each week. By Friday, each of the groups in the class is expected to comment on the presentation. On Sunday, the presentations for the week are read by the instructor along with the comments that were made by all the groups. All groups are marked every week for either their presentation or their comments about other students' presentations. This procedure is repeated for ten weeks up until the end of the semester, with each week dedicated to an in-depth discussion of a **different** topic that is related to the reading for that week.

The students' mark for the course consists of 50% group mark for their performance in the group and 50% an individual exam. To make sure that students do not take advantage of their group membership, all groups are invited to submit a consensus opinion of their members. Students are told right at the beginning of the semester that if the members of a particular group are in agreement that one member did NOT pull his or her weight, the mark of that student can be reduced by 10 points.

To conclude:

The Radical Model makes efficient use of the students' interactions with each other. Even though, students have some private interaction with the lecturer ("one to one") and some interaction as a group, when the lecturer communicates with them on the class list ("one to many"), the bulk of their interactions in this approach is in the "many to many" mode, with the other students in their presentation groups and with the rest of the students in the class through the class e-mail list.

Throughout the semester, students are assessed on 11 assessment tasks (including their group presentation, comments on other students' presentations and an end of term exam). In a class of 100, they get 18 comments that represent the views of their own group members (nine members), as well as nine group comments representing the other 90 students in the class. Since this procedure is repeated every week, the students can receive over 100 unit of inputs from their group members, the other groups, and from the lecturer by the end of the semester. Note, that most of the feedback on one's performance comes from the OTHER students - not the lecturer.

It should be noted that even though class interaction is the means through which teaching takes place, the Radical Model does not result in the list being flooded by e-mail messages. As indicated in the previous sections, students are instructed to refrain from using the class list for unlimited expression. The place for such interaction is supposed to be the small presentation groups that they establish to support their group work. The messages that end up being posted on the class list are messages from the list moderator (the lecturer) "formal" presentations of the students' work, and comments by the other groups about these presentations.

The Radical Model helps develop students' communication and other "soft skills." In addition to learning about the content area for the semester, students learn important on-line skills such as how to set up their e-mail lists, how to be citizens of an on-line community, and how to contribute to a virtual team, including dividing the work between the team members, resolving conflicts, developing ideas and projects, and providing positive feedback to others about their work.

Through the involvement of students from diverse backgrounds (many of whom are fully employed) students learn about how organizations use the abstract concepts that are mentioned in the readings. They also learn about relevant legislation and ethical issues.

The Radical Model is "flexible" for both the instructor and the students. This approach increases flexibility for

students, because the students don't have to submit hard copy assignments (hence, nothing can get lost through the system). They get to know if their submission was successful immediately when they see it posted on the class list. As well as this, if something happens to preclude an individual student's contribution during the semester, time out and compensation work can be negotiated within groups. In fact, students don't need to ever negotiate with the lecturer on late submission, special consideration, etc. All negotiations on these issues are carried out within the group.

Students have further flexibility in not having to download large amounts of data from the class Web site (there is nothing on the web site other than the Course Outline). They don't need to buy any books other than the course textbook, and even this book can be shared between them up until the end of the semester, as all assessment tasks are group based. Because all learning is facilitated by the class list, the students can engage in class activities from home, work, or while travelling. Further flexibility to the students is provided through the students' selection of supplementary readings for class discussion by **themselves**. As a result, students get to read quite a large number of articles on topical issues that are of interest to them rather than forced to read articles selected by the instructor.

Lecturer flexibility is also an enormous advantage of the radical model. Since the package for this course does not include a Study Guide, there is no need to update one every semester. Since the course is in no way dependent on a textbook, there is no need to modify or change it in any way if and when there is a need to change a textbook. In fact, preparing study materials for a new semester should not take more than a few minutes, given that nothing substantial has to change.

As for on-going teaching; reading the weekly presentation and the comments by the other groups (students are restricted to two pages or two screens maximum per critique or comment on other people's critique), takes two to three hours per week. This can be done from anywhere, including from home or from a conference. Theoretically, even if the lecturer is totally incapacitated, another person can easily take over and do the on-going weekly assessment, without inconveniencing the students.

Note that this design is also advantageous from a legal perspective. Since articles by other authors are not used as part of the course Web site, there is no infringement on other people's copy-rights.

The most important aspect about this model is that no matter how many students are in the class, the amount of work for the lecturer is the **same!!** No matter how many students are in the class, 10 or 100, the lecturer ends up checking 10 presentations of one page each per week for ten weeks. If the class consists of 10 students, these 10 pages of text represent the work of each of them. If the class consists of 100 students, the ten pages will represent the work of the ten groups into which the students have been divided. Thus, the amount of semester marking for the lecturer remains the same, irrespective of the number of students in the class.

WHY IS THE RADICAL APPROACH AN APPLICATION OF THE INTEGRATIVE MODEL?

It is our belief that the Radical Model works because it represents an integration of the three components of the Integrative E-education model. To demonstrate this point, we would like to go back to the issues that were mentioned previously as contributing to the motivation of the three stake-holders to engage in e-education.

Students

The Radical approach is motivating to students because in addition to acquisition of relevant knowledge and skills, they also receive large amount of feedback from the instructor and their fellow students. Because of its "constructivist" philosophy, the model is also associated with ample opportunities for interaction between the students and the instructor and among the students. Since 50% of the mark in this course is based on an individual exam, the students feel that their efforts both as individuals and as a group are acknowledged and fairly rewarded.

Instructors

Instructors are motivated to use this approach because by allowing the students to "create" the course (through selection of the weekly readings and leadership of the class discussion), there is an opportunity for instructors to expand their knowledge and skills as a result of teaching the course. Since most of the administrative issues that are associated with the teaching of the course (handling late submissions, appeals, etc) are resolved

WITHIN the groups without any input from the instructor, the overall experience of interacting with the class is exceptionally positive for the instructor. Since students are basically teaching each other, the effort that is involved in teaching the class is minimal, hence contributing the perception of instructors that they are not investing in the virtual class more time and effort than they would in a face to face class.

Institutions

The above case did not elaborate on the organisational context of the Radical Approach. However, from the list of tools that are used to support this approach, it is clear that this approach involves minimal investment on the part of the institution (the only requirement is to establish an e-mail list and have the students subscribe to the list). At least from this perspective, this approach can be seen as highly cost-effective for institutions, and, as such, highly motivating.

RESEARCH AGENDA EMANATING FROM THE INTEGRATIVE MODEL

The underlying premise of this paper, that the success of e-learning should be assessed in terms of its motivating potential to students, instructors, and institutions could be researched in the following ways.

1. **Outcomes**. Future research could compare different on-line teaching styles in terms of their effect on outcome variables such students, instructors and institutional satisfaction, quality of the learning process, etc. Once undertaken, such research could determine empirically the dynamics between the three stake-holders that produces successful e-learning.

2. **Process**. An analysis of the interactions in the on-line class and in organizations that use e-education on a large scale, particularly from a qualitative longitudinal perspective, can reveal patterns of communication and group dynamics that are typical of effective versus ineffective e-education environments.

3. **Antecedents**. The effect of a range of moderating variables on both the outcome and the process of effective e-education can be explored. Mediating variables could include: demographic variables (gender, age, socio-economic class, ethnicity), attitudinal variables (learning style, preference to work in the distant mode), institutional variables (course, program studied) and global variables (national culture). All these variables should, of course, be explored in terms of their effect on the perceptions of members of all three stake-holder groups.

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